OPENDCS APPLIANCE PROTOTYPE

PRESENTATION TO STIWG

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Water Management

Portland District

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BACKGROUND

- Historically, Portland District has maintained a line-of-sight radio system which is currently failing and difficult to maintain.

- The line-of-sight radio system is being replaced by GOES and Iridium telemetry. The OpenDCS software is the enterprise solution for acquiring and decoding data from these telemetry methods.

- We have a requirement to get data to remote sites (dam control rooms), independent of the internet. HRIT dishes and receivers have been purchased for each manned control room.

- The OpenDCS appliance prototype is being developed for use at remote locations to decode and display streamflow data from GOES telemetry.

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PROBLEM STATEMENT

The GOES telemetry method and equipment must reliably transmit, store and display the data directly to project control rooms making use of only the local area network.

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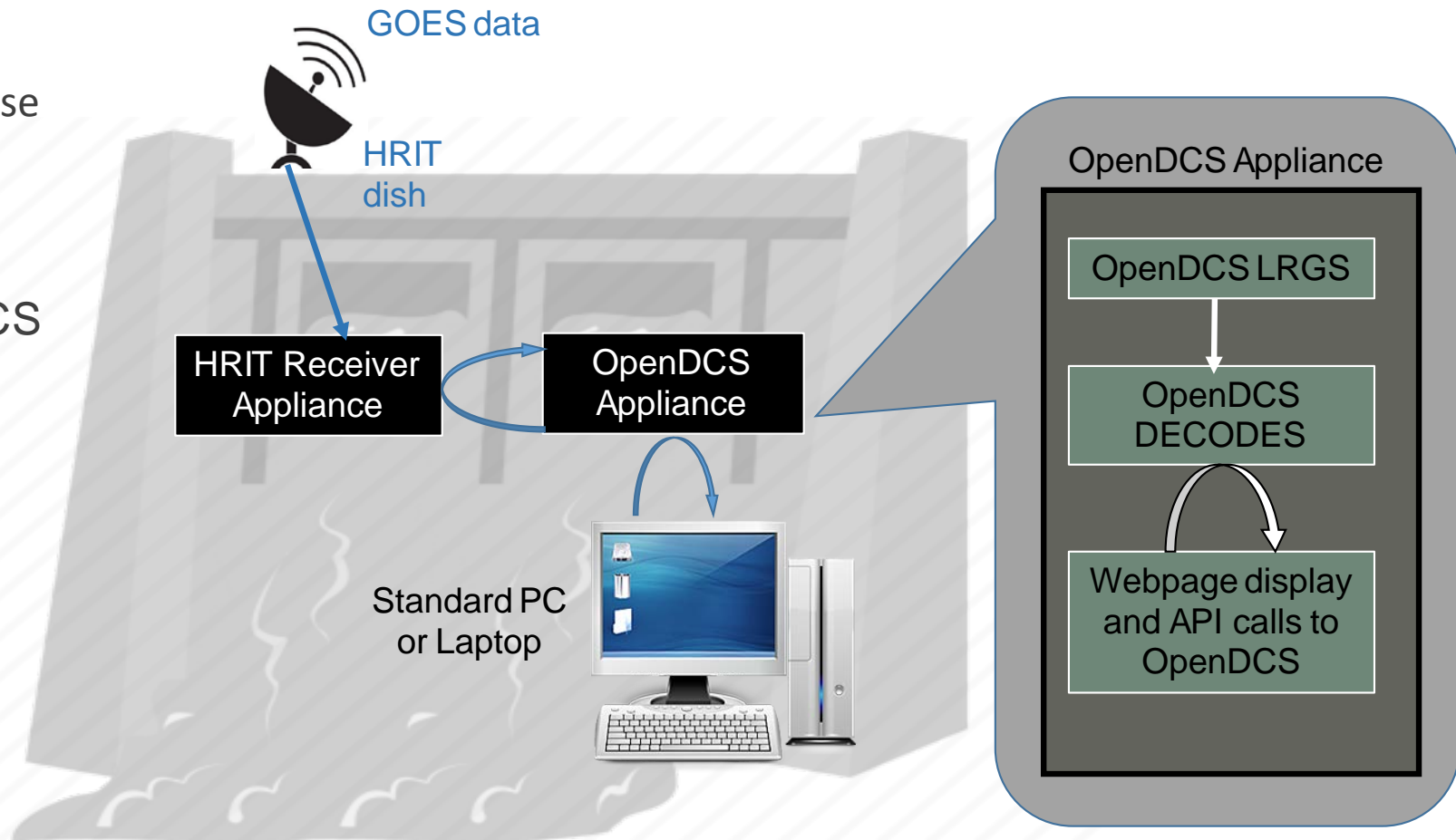of Engineers ®
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SOLUTION – GENERAL LAYOUT

The OpenDCS appliance is a single purpose unit that runs the LRGS and DECODES portions of the OpenDCS software.

Place an appliance that runs OpenDCS at remote sites to replace legacy on-site data collection.

The appliance will be connected to the HRIT receiver, which is connected to the HRIT dish.

GOES data

HRIT dish

HRIT Receiver Appliance

OpenDCS Appliance

Standard PC or Laptop

OpenDCS Appliance

OpenDCS LRGS

OpenDCS DECODES

Webpage display and API calls to OpenDCS

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USACE HISTORY OF SATELLITE TELEMETRY

– Early 2000's: LRGS and DECODES were run on Linux computers with "Sangoma" receiver cards to collect data from DOMSAT.

– 2008: DOMSAT Protocol Converter appliances replaced the Sangoma card. Data collection software was moved to centralized WMES Stacks.

– 2012: LRIT appliances replaced DOMSAT protocol converters.

– 2016: HRIT appliances upgraded LRIT appliances.

– **2018: OpenDCS appliance upgrades legacy data collection at remote sites.**

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OPENDCS APPLIANCE COSTS

- Capital expense between $700 and $1,500 per appliance.

- No annual maintenance cost. This is in line with the HRIT receiver which has no annual maintenance cost.

- End-of-life replacement is expected to be between 6 to 10 years.

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STATUS

- Finalizing modifications to OpenDCS software with Cove Software (Mike Maloney) to best accommodate the use of the software on an appliance rather than a server.

- Improving the appliance web service for retrieval of data from the appliance.
  - User configurable data display.
  - Defining what information type to display, i.e., graphs, rating tables, spark lines, etc.

- We expect to rollout the prototype appliance to the first location by end of April for field testing in the control room.

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FURTHER INFORMATION

- The OpenDCS appliance can benefit any remote site seeking reliable access to hydro-meteorological data.

- We are working with the commercial vendor OLAV, Inc. in the development of the appliance prototype.

- Any technical questions should be directed to Arthur Armour, arthur.armour@usace.army.mil.

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DEMO

- Portability. Data are viewable with a Wi-Fi connection and access to HRIT receiver or other LRGS connection.

- OpenDCS software client can be used to populate DECODES on the appliance.

- Through the appliance web interface, one can view:
  - General info (all users)
    - Review data display pages
    - Review rating tables
    - System details

  - Admin functions (login credentials required)
    - Turn LRGS and DECODES on & off
    - Firmware updates
    - IP configuration
    - Change password

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QUESTIONS?

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